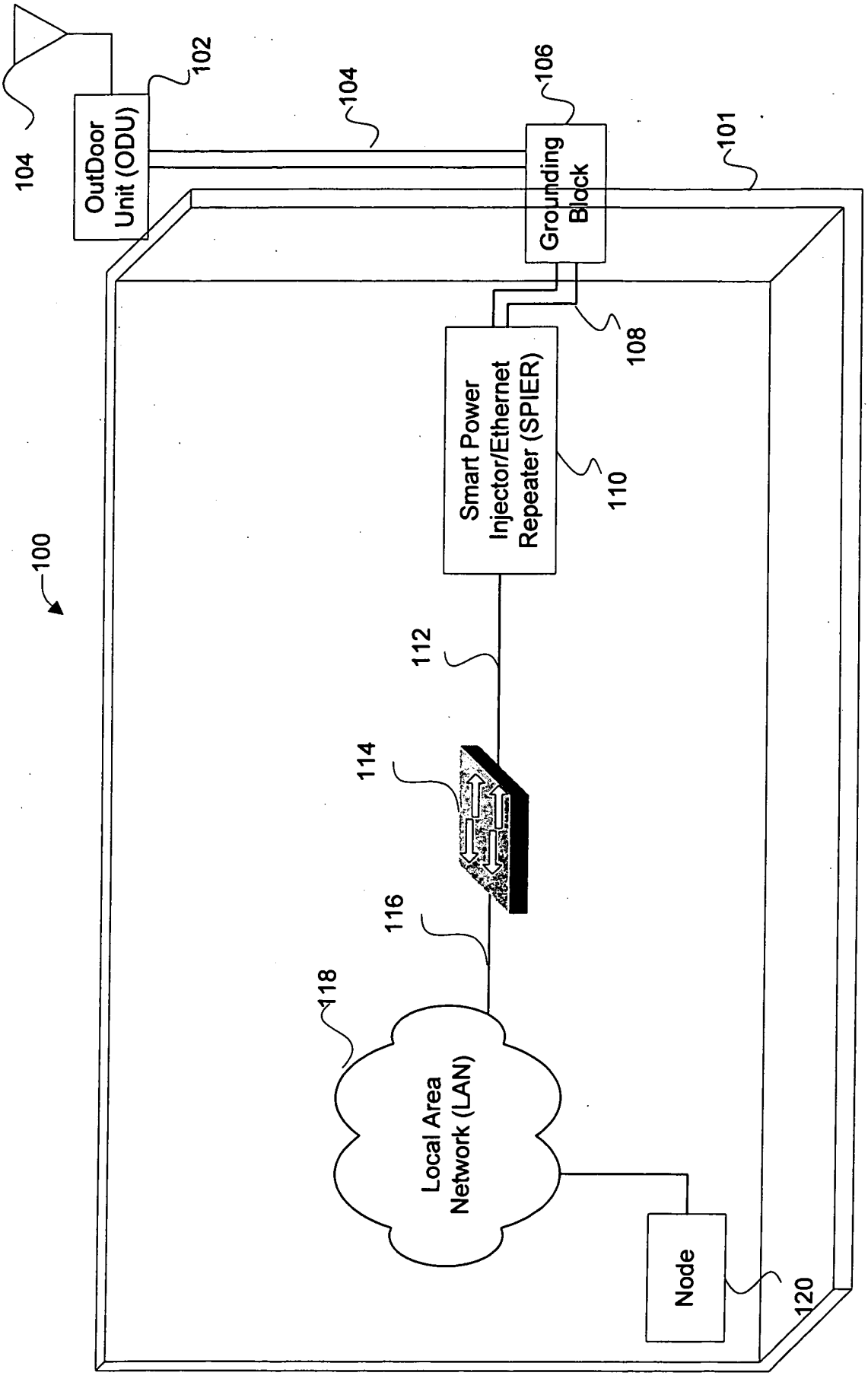
100
104
OutDoor Unit (ODU)
102
104
106
Grounding Block
101
108
Smart Power Injector/Ethernet Repeater (SPIER)
110
112
114
116
118
Local Area Network (LAN)
Node
120

Figure 1

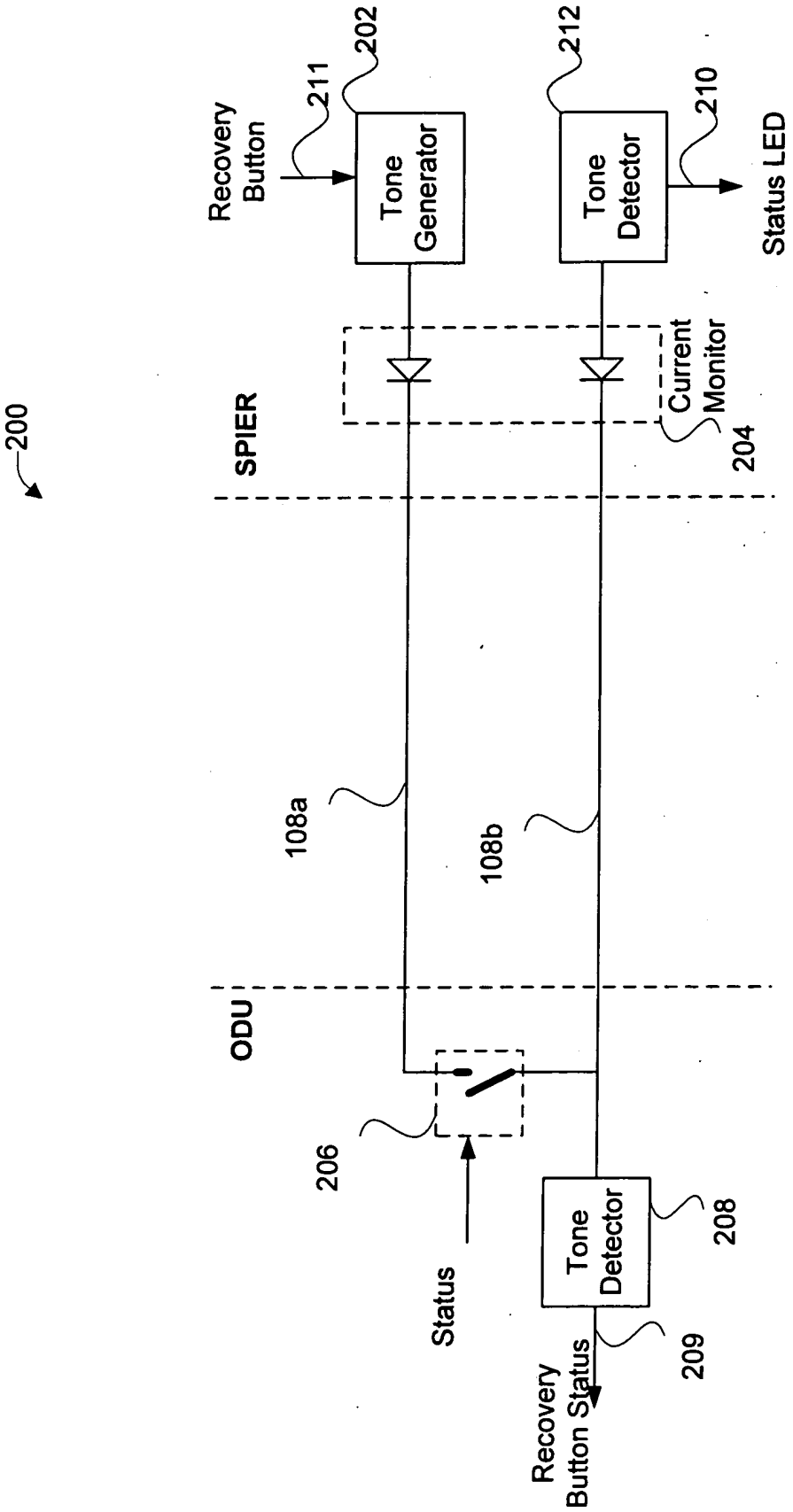
200
SPIER
ODU
Recovery Button
211
202
Tone Generator
212
Tone Detector
210
Status LED
Current Monitor
204
108a
108b
206
Status
Tone Detector
208
209
Recovery Button Status

Figure 2

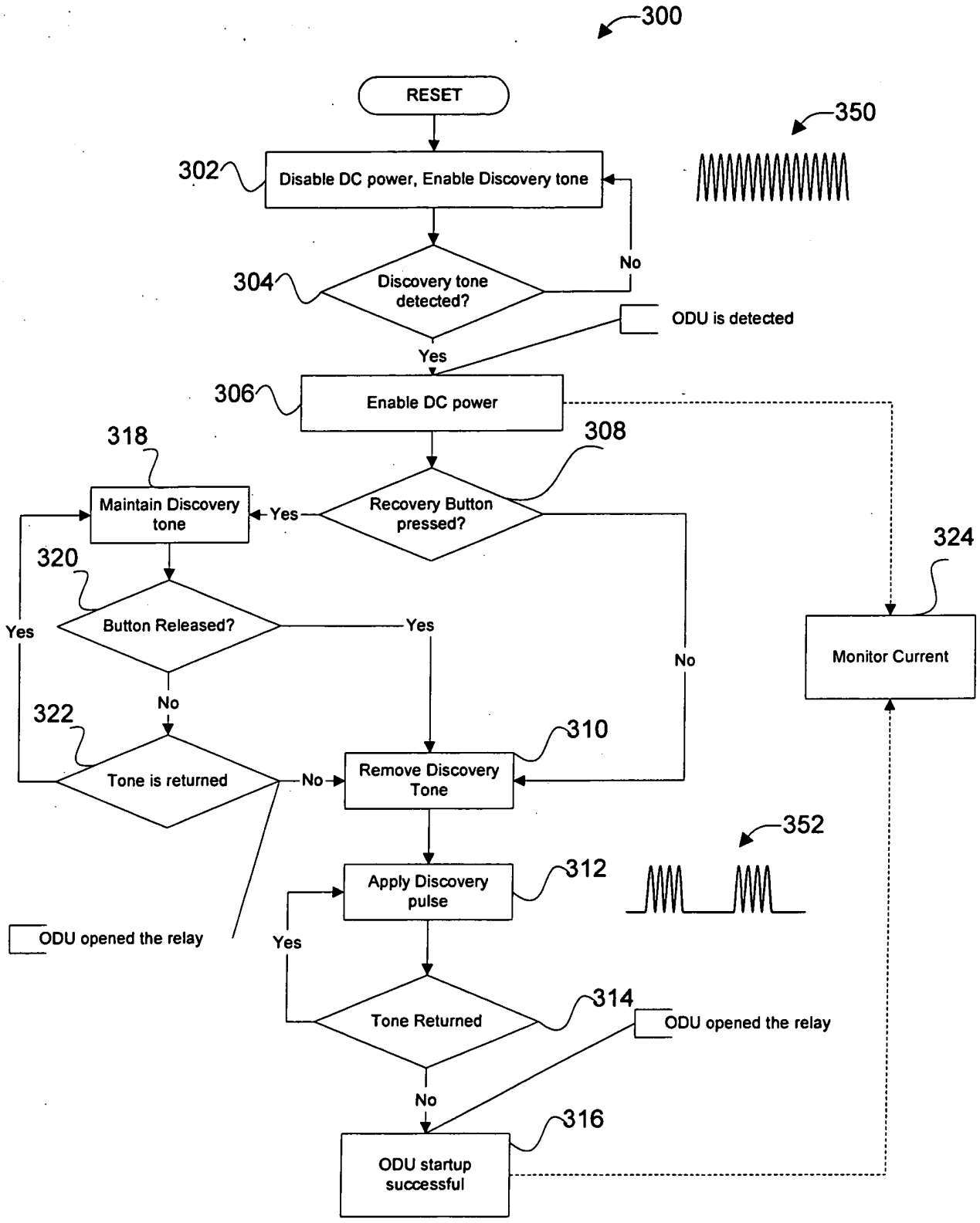
300
RESET
350
302
Disable DC power, Enable Discovery tone
304
Discovery tone detected?
No
ODU is detected
Yes
306
Enable DC power
318
308
Maintain Discovery tone
Yes
Recovery Button pressed?
324
320
Button Released?
Yes
Yes
No
Monitor Current
No
322
Tone is returned
No
310
Remove Discovery Tone
352
312
Apply Discovery pulse
ODU opened the relay
Yes
314
Tone Returned
ODU opened the relay
No
316
ODU startup successful

Figure 3

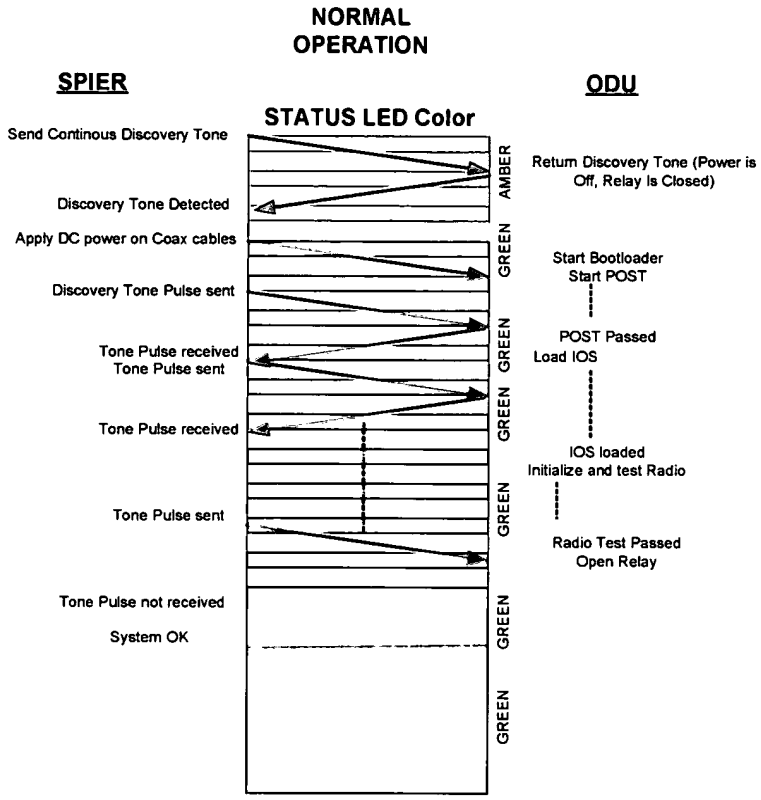
NORMAL
OPERATION
SPIER
ODU
STATUS LED Color
Send Continous Discovery Tone
Discovery Tone Detected
Apply DC power on Coax cables
Discovery Tone Pulse sent
Tone Pulse received
Tone Pulse sent
Tone Pulse received
Tone Pulse sent
Tone Pulse not received
System OK
AMBER
GREEN
GREEN
GREEN
GREEN
GREEN
GREEN
Return Discovery Tone (Power is Off, Relay Is Closed)
Start Bootloader
Start POST
POST Passed
Load IOS
IOS loaded
Initialize and test Radio
Radio Test Passed
Open Relay

Figure 4A

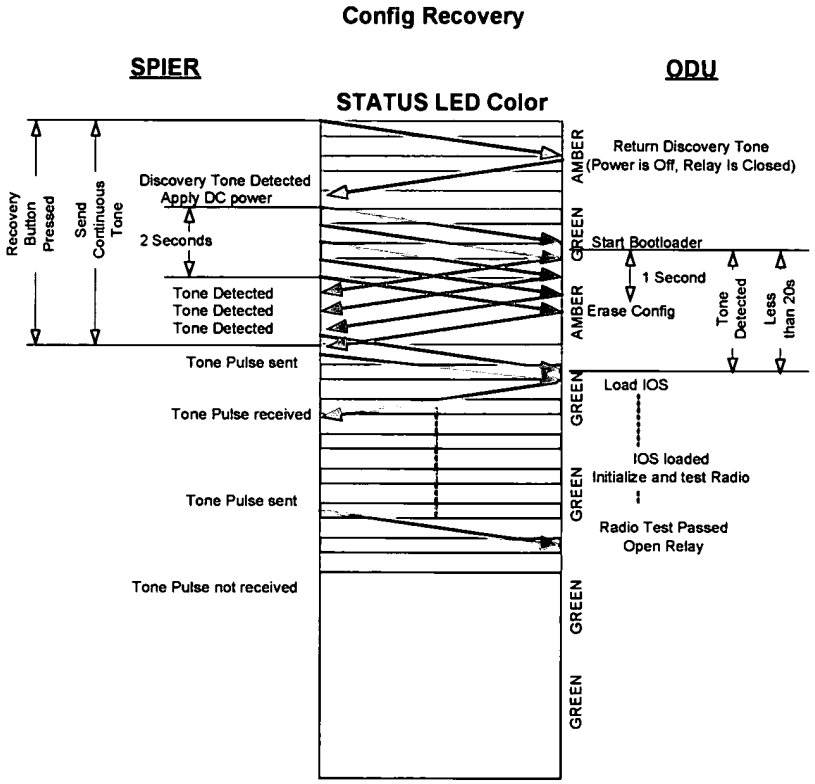
Config Recovery
SPIER
ODU
STATUS LED Color
Recovery Button Pressed
Send Continuous Tone
Discovery Tone Detected
Apply DC power
2 Seconds
Tone Detected
Tone Detected
Tone Detected
Tone Pulse sent
Tone Pulse received
Tone Pulse sent
Tone Pulse not received
AMBER
GREEN
AMBER
GREEN
GREEN
GREEN
Return Discovery Tone
(Power is Off, Relay Is Closed)
Start Bootloader
1 Second
Erase Config
Tone Detected
Less than 20s
Load IOS
IOS loaded
Initialize and test Radio
Radio Test Passed
Open Relay

Figure 4B

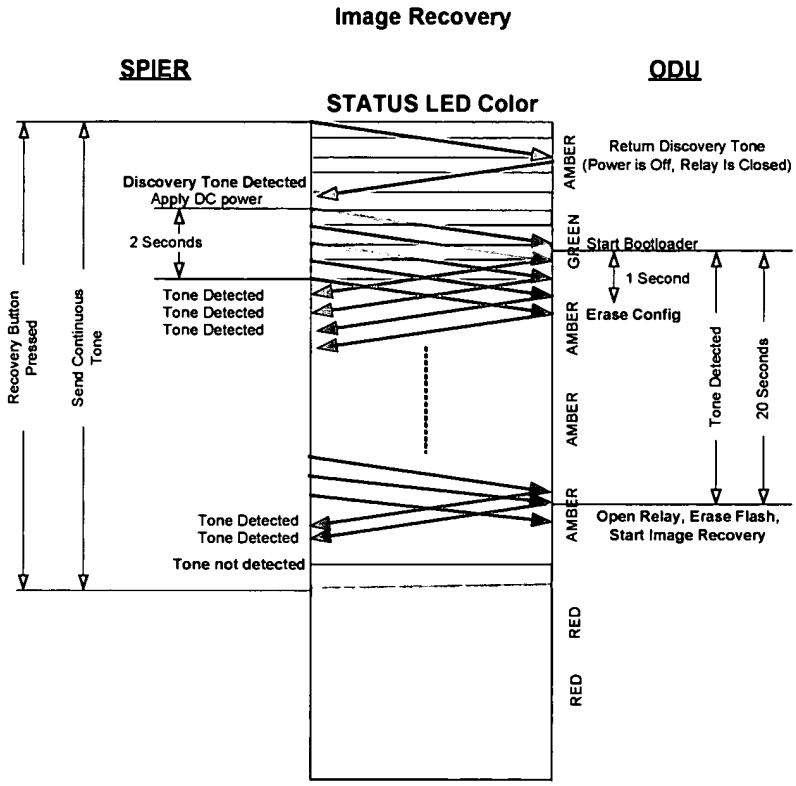
Image Recovery
SPIER
ODU
STATUS LED Color
Recovery Button Pressed
Send Continuous Tone
Discovery Tone Detected
Apply DC power
2 Seconds
Tone Detected
Tone Detected
Tone Detected
Tone Detected
Tone Detected
Tone not detected
Return Discovery Tone
(Power is Off, Relay Is Closed)
Start Bootloader
1 Second
Erase Config
Tone Detected
20 Seconds
Open Relay, Erase Flash,
Start Image Recovery
AMBER
GREEN
AMBER
AMBER
AMBER
RED
RED

Figure 4C

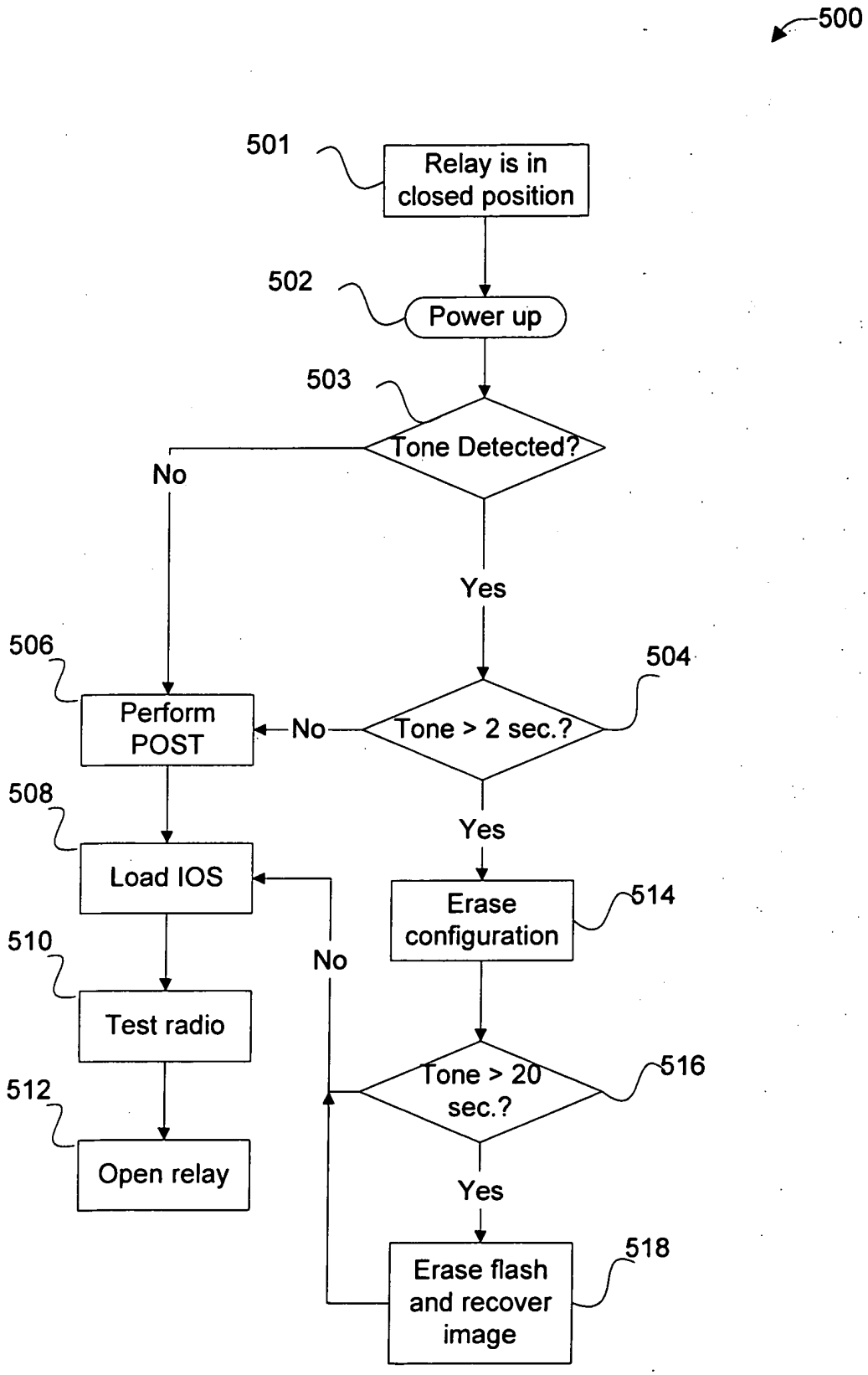
500
501
Relay is in closed position
502
Power up
503
Tone Detected?
No
Yes
506
Perform POST
No
504
Tone > 2 sec.?
508
Load IOS
Yes
Erase configuration
514
510
Test radio
No
Tone > 20 sec.?
516
512
Open relay
Yes
518
Erase flash and recover image

Figure 5

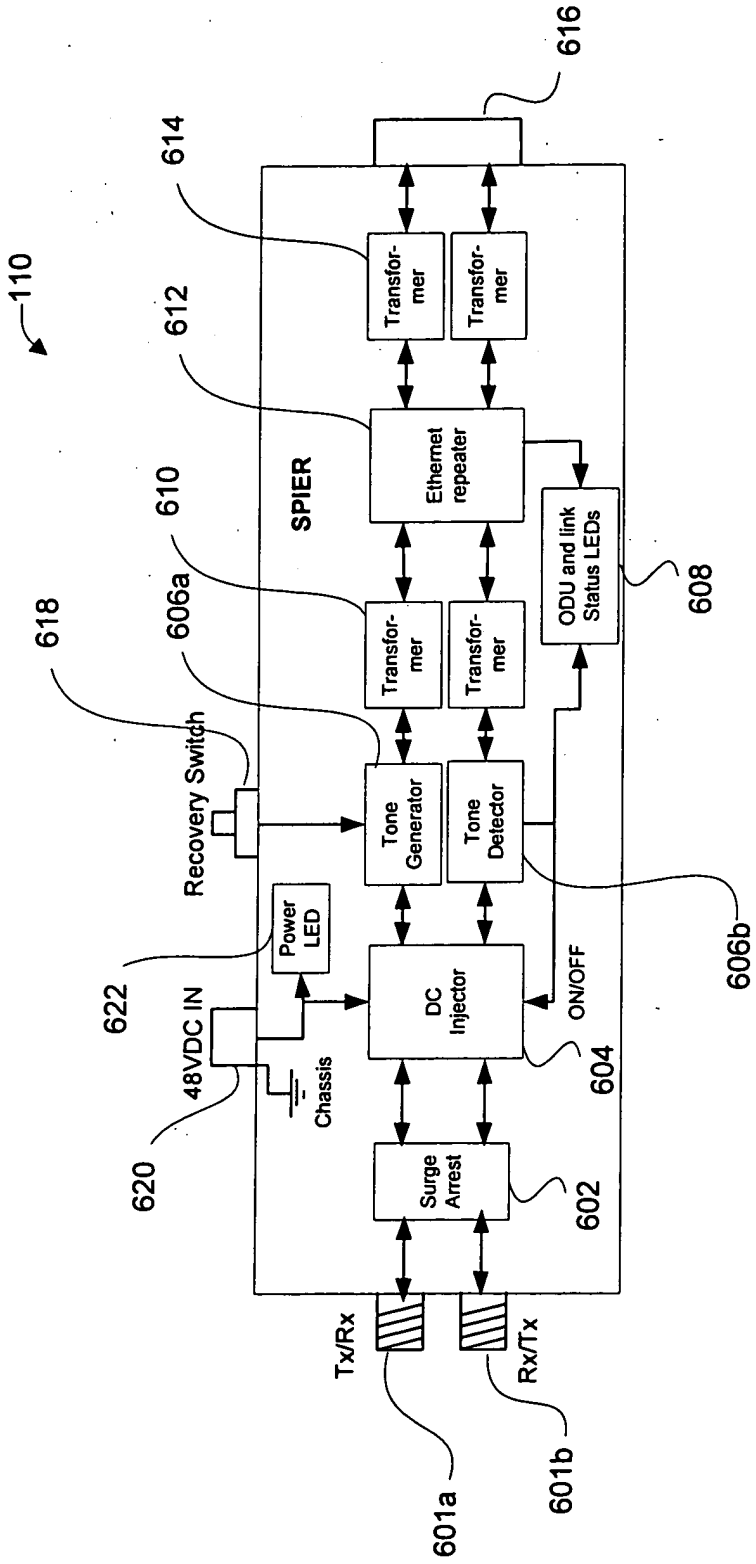
110
SPIER
616
614
612
610
606a
618
608
606b
622
620
604
602
601a
601b
Transfor-mer
Transfor-mer
Ethernet repeater
Transfor-mer
Transfor-mer
ODU and link Status LEDs
Recovery Switch
Tone Generator
Tone Detector
Power LED
DC Injector
ON/OFF
48VDC IN
Chassis
Surge Arrest
Tx/Rx
Rx/Tx

Figure 6

700

Figure 7A: Injector Status LED

Steady Green	ODU passed POST and Loaded software image
Blinking Green	DC power applied, ODU is loading software or going through POST
Blinking Amber	ODU is not discovered, DC power not applied.
Steady Amber	Recovery button is pressed more than 2 second and less than 20 sec, ODU is in Configuration recovery mode
Steady red	Recovery button was pressed more than 20 sec, ODU is in Image recovery mode, downloading new image.

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Figure 7B: Power LED

Black	No DC power is applied to SPIER
Steady green	DC power is applied to SPIER

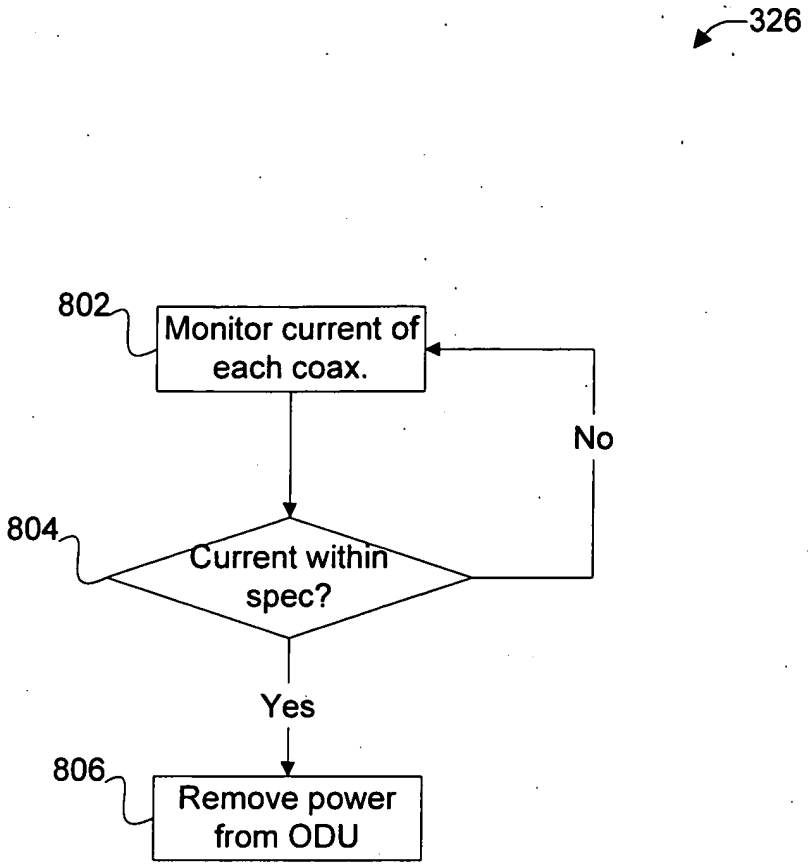
326
802
Monitor current of each coax.
No
804
Current within spec?
Yes
806
Remove power from ODU

Figure 8